

Claims

[c1] What is claimed is:

1.A method of generating a welding arc comprising the steps of:

initiating wire feed speed;

temporarily reducing wire feed speed for a period of time based on detection of arc initialization and a user selected speed; and

adjusting wire feed speed based on the user selected speed.

[c2] 2.The method of claim 1 wherein the step of initiating wire feed speed is further defined as initiating wire feed speed at a run-in value and wherein the period of time is determined by the user selected speed.

[c3] 3.The method of claim 2 wherein the period of time is 50 ms.

[c4] 4.The method of claim 1 further comprising the step of detecting initialization of a welding arc.

[c5] 5.The method of claim 4 further comprising the step of delaying a wire drive power until after generation of a welding power signal by a power source.

- [c6] 6.The method of claim 5 wherein a duration of the delay is less than approximately 20 ms.
- [c7] 7.The method of claim 1 further comprising initiating a power source power signal and initiating a wire feeder power signal by a trigger.
- [c8] 8.The method of claim 1 further comprising at least one of the steps of pulling wire from a spool to a torch, pushing and pulling wire to a torch, and pushing wire to a torch.
- [c9] 9.A method of establishing a welding arc comprising:
defining a wire feed speed based on a user selected wire feed speed; and
reducing the wire feed speed before the wire feed speed reaches the user selected wire feed at weld stabilization.
- [c10] 10.The method of claim 9 wherein the reduction of the wire feed speed is based on arc initialization.
- [c11] 11.The method of claim 9 further comprising determining a duration of the reduced wire feed speed based on the user selected wire feed speed.
- [c12] 12.The method of claim 9 further comprising generating a weld power prior to powering a wire feeder.

- [c13] 13.The method of claim 9 further comprising at least one of pulling wire from a wire spool to a torch, pushing and pulling wire to a torch, and pushing wire to a torch.
- [c14] 14.The method of claim 9 wherein the wire feed speed is reduced to approximately zero between an initial run-in speed and achieving the user selected wire feed speed.
- [c15] 15.A welding system comprising:
a power source configured to generate a power signal suitable for welding;
a wire feeder connected to the power source and configured to deliver a consumable wire electrode to a weld at a wire feed speed; and
a controller connected to the wire feeder and configured to automatically set a rate of acceleration of the wire feed speed, then, while maintaining a direction of wire feed, abruptly reduce the wire feed speed before welding arc stabilization and then set the wire feed speed to a relatively stable speed for welding.
- [c16] 16.The system of claim 15 further comprising a detection circuit in communication with the controller and configured to detect at least one of welding arc initialization and welding arc stabilization.
- [c17] 17.The system of claim 16 wherein the detection circuit

is in serial communication with the controller and is in at least one of the wire feeder and the power source.

[c18] 18.The system of claim 15 further comprising a wire feed speed selector knob connected to the controller and configured to communicate a welding wire feed speed thereto.

[c19] 19.The system of claim 18 wherein the controller is configured to override the welding wire feed speed until welding arc stabilization.

[c20] 20.The system of claim 19 wherein the controller overrides the welding wire feed speed for a duration determined by the wire feed speed.

[c21] 21.The system of claim 15 further comprising a torch having a trigger wherein activation of the trigger initiates the power signal suitable for welding and a wire feeder power.

[c22] 22.The system of claim 21 wherein the controller generates a delay between the initiation of the power signal suitable for welding and the wire feeder power.

[c23] 23.The system of claim 22 wherein the delay is less than approximately 20 ms.

[c24] 24.The system of claim 15 wherein the wire feeder is

configured to pull the consumable wire electrode to a torch.

- [c25] 25.A welding system comprising:
a power source configured to generate a power signal suitable for welding-type applications;
a wire feeder constructed to deliver a filler material to a weld; and
means for controlling a filler material delivery rate that reduces the delivery rate without reversing a delivery direction based on welding arc initialization prior to arc stabilization.
- [c26] 26.The system of claim 25 further comprising means for detecting arc condition.
- [c27] 27.The system of claim 26 wherein the detecting means detects an initial arc condition and a stable arc condition.
- [c28] 28.The system of claim 25 wherein the controlling means instructs a delivery rate of a user defined wire feed speed after welding arc stabilization.